

## ORIGINAL ARTICLE

# PATIENT SAFETY CULTURE ATTITUDES AMONG DIFFERENT HEALTHCARE PROFESSIONALS IN SELECTED GENERAL AND DISTRICT HOSPITALS: A PRELIMINARY STUDY

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## ABSTRACT

According to the World Health Organization, the reduction of accidental injury during medical procedure is heavily influenced by patient safety culture in hospitals. Patient safety culture is a collective shared behavior ranging from individual and group values, attitudes and perception that determine the commitment of an organization's safety management. Organizations such as the National Health Services and the National Quality Forum have suggested that by measuring patient safety culture, the healthcare industry can be improved by assessing their ability to deal with risky healthcare delivery. Because of that, a number of hospitals in developed countries such as the United Kingdom and United States of America have measured their healthcare professionals' patient safety attitude by using various validated safety attitude tools. One of the most commonly used tools is the Safety Attitude Questionnaire (SAQ), which has been proven by many studies to have good construct validity, internal consistency and domains properties that are associated with patient safety outcomes. The SAQ can measure healthcare professionals' attitude through six domains, which are teamwork climate, safety climate, perception on management, job satisfaction, working condition and stress management. Despite its importance, there is insufficient data on patient safety culture among Malaysian healthcare professionals. Thus, this study was designed to investigate differences in patient safety culture attitudes among selected healthcare professionals and types of hospital. The data analyses include descriptive, one-way ANOVA test and independent t-test in SPSS. The findings showed that doctors, nurses, pharmacists and medical assistants responded differently for safety climate, job satisfaction and working condition while teamwork climate, perception on management and stress recognition are not significantly different. The results also showed that there are significant differences between the general and district hospitals for safety climate in all domains except for working conditions. These results indicate that healthcare profession and type of hospital were factors for the SAQ scores.

**Keywords:** *Healthcare professionals, Patient safety culture, Safety Attitude Questionnaire (SAQ).*

## INTRODUCTION

Healthcare professionals' attitudes towards patient safety culture is an important component in the healthcare system, and plays as a key role in patient safety in hospital. Vincent et al. (1998), mentions that safety culture in an organization is an important factor influencing system safety. In the same vein, Raftopoulos and Pavlakis, (2013) notes that increasing safety culture should be one of the main attention in healthcare industry. Traditionally, it has been argued that safety culture can be defined as the shared values, attitudes, beliefs and competencies of individuals in an organization towards an organisation's health and safety management (Nieva & Sorra, 2003; Raftopoulos & Pavlakis, 2013).

A number of studies have used the term safety culture interchangeably with 'safety climate', and occasionally using attitudes. One study by Colla et al, (2010) use 'safety climate' because

they define safety climate as a measurable component of 'safety culture' while another study by Kirk et al. (2007), used term 'safety culture' in their study by stating that safety culture emerged from shared safety-related issues, belief and values in an organisation. However, Halligan and Zecevic (2011) mentioned in their study that safety culture has a clear definition on safety and most researchers prefer to use the term safety culture in their study. To sum it up, the term safety culture will be used in this study for consistency.

Concerns about of safety culture heightened in late 1990s due to an alarming number of preventable medical errors in the healthcare system, this then led to widespread efforts to increase patient safety has become widespread since then. The famous report by the Institute of Medicine (IOM) in 2000, "To Err Is Human" mentioned that medical errors cause between 44,000 to 98,000 deaths annually in the United

States (Donaldson, Corrigan & Kohn, 2000). In a more recent study by James (2013), it was reported that 400,000 adverse events and 210,000 deaths each year relate to preventable medical errors in US hospital. Both studies urged the healthcare industry to increase their efforts in improving safety culture.

Improving safety culture in healthcare has many obstacles and challenges as safety culture covers many aspects such as cultural, behaviour, clinical, technical and psychological domains (Srima Elina et al., 2015). A considerable amount of literature has been published on measuring and improving safety culture, including the development of a few psychometric instruments for measuring safety culture in the healthcare industry. Each of the instruments has its own strength, however the Safety Attitude Questionnaire (SAQ) has been associated with patient outcomes (Bondevik, Hofoss, Hansen, & Deilkås, 2014; Lee et al., 2010; Saraiva & Almeida, 2015).

The SAQ has the capability to assess six safety culture domains (see Fig 1 below): teamwork climate, safety climate, job satisfaction, perception of management, working conditions and stress management (John B Sexton et al., 2006). Due to instrument's capability, several studies have employed the SAQ to assess patient safety culture in hospitals in the United States, Europe and Asia (Buljac-Samardzic, van Wijngaarden, & Dekker-van Doorn, 2016; Lee et al., 2010; Robb & Seddon, 2010; J. Bryan Sexton, Thomas, & Helmreich, 2001). By contrast, there is limited evidence to suggest that a similar study has been performed in Malaysia.

**Figure 1 SAQ domain definition**

SAQ domain	Definition
Teamwork climate	Perceived quality of teamwork between personnel
Safety climate	Perception of a strong and proactive organizational commitment to safety
Job satisfaction	Positivity about the work experience
Stress recognition	Acknowledgement of how performance is influenced by stressors
Perception of management	Approval of managerial action
Working conditions	Perceived quality of the work environment and

logistical support (staffing. Equipment, etc)
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Given the lack information on patient safety culture in Malaysian hospitals, this preliminary study was performed to determine the safety culture in Malaysian hospital by using the Safety Attitude Questionnaire (SAQ). Furthermore, this sought to understand different healthcare professionals had different patient safety culture attitudes ad whether the safety culture was also different between general and districts hospital.

## METHODS

### *Participants*

A cross-sectional study was carried out among medical doctor, staff nurse, pharmacist and medical assistant (n=207) at two selected general hospitals and two selected district hospitals in a state in Malaysia. All of the selected hospitals were government hospitals, and therefore their patient safety practices and policies are similar. Data was collected by distributing self-administered questionnaires to the healthcare professionals. Ethical approval was obtained from the Medical Research and Ethics Committee (NMRR-16-1777-30238) of the Ministry of Health Malaysia.

### *Instruments*

The instrument used in this study was the Safety Attitude Questionnaire (SAQ). The SAQ has been used widely as a tool to measure safety culture attitudes and perceptions relevant to safety in healthcare (Buljac-Samardzic et al., 2016). The SAQ used in this study comprised of 36 items covering the six domains in safety culture attitudes: teamwork climate, safety climate, perceptions on management, job satisfaction, working condition and stress recognition. Each question needs to be answered using a six-point Likert scale: 1 = disagree strongly, 2 = disagree slightly, 3 = Neutral, 4 = agree slightly, 5 = agree strongly and 6 = not applicable. Negatively worded items were reversed scored according to Sexton et al (2005).

### *Data Analysis*

Descriptive statistics were used to describe the respondents' gender, profession, type of hospital they worked at and the scores for each SAQ domain. Differences between healthcare professionals were analysed using one-way Anova, while differences between the selected general hospitals and selected district hospitals using independent t-test. All analyses were

performed using Statistical Package for Social Sciences (SPSS) version 20.

## RESULTS

The demographic data of the respondents are presented in Table 1. Most of the respondents were female (76.2%) and most of them were staff nurses (66.5%) and worked in general hospital (75.4%). The number of female respondents was higher because staff nurses had the higher proportion among healthcare workers. The number of respondents from general hospitals was larger than district hospitals because the general hospitals had larger number of healthcare professionals.

**Table 1 Demographic characteristics of respondents**

Characteristics	Respondent (n)	Frequency (%)
<i>Gender</i>		
Male	54	23.8
Female	173	76.2
<i>Profession</i>		
Medical Doctor	44	19.4
Staff Nurse	151	66.5
Pharmacist	15	6.6
Medical Assistant	17	7.5
<i>Hospital</i>		
General 1	100	44.1
General 2	71	31.3
District 1	35	15.4
District 2	21	9.3

*Variance of SAQ components between healthcare professionals.*

Table 2 shows the variance of SAQ components using one-way Anova analysis. The analysis showed that three domains differ significantly between the healthcare professionals: safety climate ( $p < 0.001$ ), job satisfaction ( $p < 0.001$ ) and working conditions ( $p < 0.0001$ ). The healthcare professions did not differ significantly in terms of teamwork climate ( $p > 0.05$ ), stress recognition ( $p > 0.05$ ) and perception on management ( $p > 0.05$ ).

The results of this study indicate that healthcare profession can affect SAQ scores. There are several possible explanations for this finding. Manser (2009), suggested that different healthcare professionals perceive the quality of teamwork differently, possibly due to the

differences in the hierarchy between healthcare professions. The healthcare professionals may also be facing communication problems such as - when they speaking up to their leaders or discussing on patient care decisions. In addition, Fewster-Thuente and Velsor-Friedrich (2008) mentioned that safety in healthcare has a direct impact from interdisciplinary collaboration between healthcare professions, included lack of role clarification and understanding between healthcare professions were some of the barriers to collaboration in healthcare.

**Table 2 SAQ domains for different healthcare professions**

SAQ components/ position	Mean	P value Anova
<i>Teamwork climate</i>		
Doctor	4.15	0.160
Nurses	4.27	
Pharmacist	4.40	
Medical Assistant	4.00	
<i>Safety climate</i>		
Doctor	3.91	<0.001
Nurses	4.27	
Pharmacist	4.26	
Medical Assistant	3.97	
<i>Job satisfaction</i>		
Doctor	4.15	<0.001
Nurses	4.52	
Pharmacist	4.81	
Medical Assistant	4.04	
<i>Stress recognition</i>		
Doctor	3.74	0.172
Nurses	3.35	
Pharmacist	3.42	
Medical Assistant	2.96	
<i>Perception management</i>		
Doctor		0.406
Nurses	3.50	
Pharmacist	3.66	
Medical Assistant	3.76	
<i>Working conditions</i>		
Doctor	3.60	<0.001
Nurses	3.81	
Pharmacist	4.27	
Medical Assistant	3.27	

*SAQ scores between selected general and district hospital.*

Table 3 provides the summary statistics of the differences in SAQ scores between the selected general hospitals and district hospitals using

independent t-test. This study found that there were significant differences in all SAQ components except for working conditions ( $p>0.05$ ).

The result of this study indicates that type of hospital is a factor affecting SAQ scores. This finding is consistent with those of Flinn et al (2000) who suggested that different type of hospital have different safety management approaches that can act as a factor in safety culture in the hospital. Another explanation could be that large hospitals have a larger number of staffs have different values and attitudes towards safety culture. On the other hand, there was no difference in working condition domain, possibly due to similarly perceived workload and work pressure in both general and district hospitals.

**Table 3 SAQ domains for different type of hospitals**

SAQ components	P value t-test
Teamwork climate	0.003
Safety climate	0.003
Job satisfaction	0.035
Stress recognition	0.002
Perception management	0.026
Working conditions	0.210

## CONCLUSION

In general, we found out that healthcare professions and type of hospital can be a factor affecting SAQ scores. Healthcare profession can affect safety climate, job satisfaction and working condition while type of hospital can affect all the domains within SAQ except for working conditions. However, our study is limited by only using selected hospital in a single state. Future research should include the various other locations within the country and explore more factors that can affect safety culture in the Malaysian healthcare industry.

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## REFERENCES

- Buljac-Samardzic, M., van Wijngaarden, J. D., & Dekker-van Doorn, C. M. (2016). Safety culture in long-term care: a cross-sectional analysis of the Safety Attitudes Questionnaire in nursing and residential homes in the Netherlands. *BMJ Quality & Safety*, 25(6), 424-431.
- Bondevik, G. T., Hofoss, D., Hansen, E. H., & Deilkås, E. C. T. (2014). The safety attitudes questionnaire - ambulatory version: psychometric properties of the Norwegian translated version for the primary care setting. *BMC Health Services Research*, 14(1), 139.
- Colla, J. B., Bracken, A. C., Kinney, L. M., & Weeks, W. B. (2005). Measuring patient safety climate: a review of surveys. *BMJ Quality & Safety*, 14(5), 364-366.
- Donaldson, M. S., Corrigan, J. M., & Kohn, L. T. (Eds.). (2000). *To err is human: building a safer health system* (Vol. 6). National Academies Press.
- Fewster-Thuente, L., & Velsor-Friedrich, B. (2008). Interdisciplinary collaboration for healthcare professionals. *Nursing administration quarterly*, 32(1), 40-48.
- Flin, R., Mearns, K., O'Connor, P., & Bryden, R. (2000). Measuring safety climate: identifying the common features. *Safety science*, 34(1-3), 177-192.
- Halligan, M., & Zecevic, A. (2011). Safety culture in healthcare: a review of concepts, dimensions, measures and progress. *BMJ quality & safety*, bmjqs-2010.
- James, J. T. (2013). A new, evidence-based estimate of patient harms associated with hospital care. *Journal of patient safety*, 9(3), 122-128.
- Lee, W.-C., Wung, H.-Y., Liao, H.-H., Lo, C.-M., Chang, F.-L., Wang, P.-C., ... Hou, S.-M. (2010). Hospital safety culture in Taiwan: a nationwide survey using Chinese version Safety Attitude Questionnaire. *BMC Health Services Research*, 10, 234.

Manser, T. (2009). Teamwork and patient safety in dynamic domains of healthcare: a review of the literature. *Acta Anaesthesiologica Scandinavica*, 53(2), 143-151.

Nieva, V. F., & Sorra, J. (2003). Safety culture assessment: a tool for improving patient safety in healthcare organizations. *BMJ Quality and Safety*, 17-24.

Raftopoulos, V., & Pavlakis, A. (2013). Safety climate in 5 intensive care units: A nationwide hospital survey using the Greek-Cypriot version of the Safety Attitudes Questionnaire. *Journal of Critical Care*, 28(1), 51-61.

Robb, G., & Seddon, M. (2010). Measuring the safety culture in a hospital setting: a concept whose time has come? *The New Zealand Medical Journal*, 123(1314), 68-78.

Saraiva, D. M. R. F., & Almeida, A. A. de. (2015). Validation of the Safety Attitudes Questionnaire - Short Form 2006 to Portugal. *International Journal of Nursing*, 2(1), 103-112.

Sexton, J. B., Thomas, E. J., & Helmreich, R. L. (2001). Error, Stress, and Teamwork in Medicine and Aviation: Cross Sectional Surveys. *Journal of Human Performance in Extreme Environments*, 6(1), 745-749

Sexton, J. B., Helmreich, R. L., Neilands, T. B., Rowan, K., Vella, K., Boyden, J., ... Thomas, E. J. (2006). The Safety Attitudes Questionnaire: Psychometric properties, benchmarking data, and emerging research. *BMC Health Services Research*, 6(4), 10.

Srima Elina, S., Lin, L., & Mathumalar Loganathan, F. (2015). Safety culture perceptions of pharmacists in Malaysian hospitals and health clinics: a multicentre assessment using the safety attitudes questionnaire. *BMJ Open*, 5(11), e008889.

Vincent, C., Taylor-Adams, S., & Stanhope, N. (1998). Framework for analysing risk and safety in clinical medicine. *BMJ: British Medical Journal*, 316(7138), 1154.